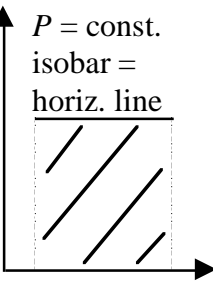
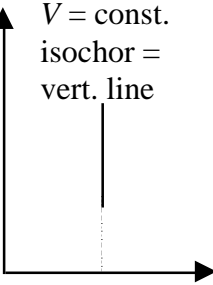
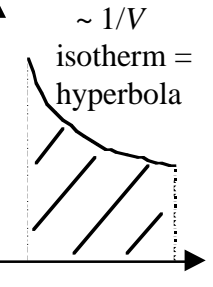
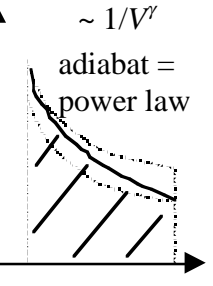


Four Thermal Processes for Ideal Gases—C.E. Mungan, Spring 1999

type	W	Q	ΔU	P - V graph
isobaric (constant P)	$P\Delta V = nR\Delta T$	$nC_p\Delta T$	$nC_v\Delta T$	 <p>$P = \text{const.}$ isobar = horiz. line</p>
isochoric (constant V)	0	$nC_v\Delta T$	$nC_v\Delta T$	 <p>$V = \text{const.}$ isochor = vert. line</p>
isothermal (constant T)	$nRT \ln(V_f/V_i)$	$nRT \ln(V_f/V_i)$	0	 <p>$\sim 1/V$ isotherm = hyperbola</p>
adiabatic (insulated or very rapid)	$-nC_v\Delta T$	0	$nC_v\Delta T$	 <p>$\sim 1/V^\gamma$ adiabat = power law</p>